



October 31, 2019

Mr. Doug Neumann
Public Works Director
City of West Bend
251 Municipal Drive
West Bend, WI 53095

Subject: Request to Immediately Expand Vapor Investigation at Schuster Drive Landfill, 3995 Schuster Drive, West Bend, WI
DNR BRRTS Activity # 02-67-584461
DNR FID # 267059320

Dear Mr. Neumann:

The Department of Natural Resources (DNR) has evaluated the environmental contamination originating at the Schuster Drive Landfill and the efforts being conducted to mitigate the risk it poses. While significant efforts have been made to prevent contaminants migrating from the landfill, historical sampling data has shown that trichloroethene (TCE) and other contaminants are still leaving the site through groundwater. Recently collected samples have also confirmed that TCE in groundwater has migrated into nearby homes as vapor. TCE that accumulates in indoor air can pose an acute (immediate) health risk to certain populations including, as noted in the attached factsheet provided by the Wisconsin Department of Health Services, fetal heart malformation. Based on our evaluation the DNR is requesting that the scope of the vapor assessment within the Villa Park Subdivision be expanded without delay (in accordance with ch. NR 708, Wis. Admin. Code) to address the immediate health risks posed by TCE contaminated soil vapor.

Analytical data collected from temporary wells installed within Villa Park indicates that TCE concentrations have a high degree of variability over a short distance. Using this data to assess where groundwater contamination (and potentially vapor contamination) is and is not present is not a reliable means to assess the acute risk posed by TCE. The results of any given environmental sample only provides an estimate of the TCE concentration as it only represents what is present at a specific time in a very small amount of material and is not representative of overall site conditions. Comparing a single sample result (or even a small number of samples collected over time) to a relatively small risk-threshold is therefore not an accurate means to assess risk. A sample result that is near, or below, a risk threshold does not indicate that TCE concentrations will always be present under these thresholds over time. Furthermore, using the depth of the water table at different houses to rule-out a vapor intrusion risk has limited value as it is unknown what separation distance between a source of TCE vapor and a receptor is protective.

The current strategy of using groundwater gauging and sampling at temporary wells to identify houses at risk for vapor intrusion is not a sufficient response to address vapor intrusion at this site. Delaying the collection of vapor sampling at certain houses until groundwater data has been evaluated is too slow for responding to TCE concerns related to sensitive populations. Guidance document RR-800 (Section 3.4.1) notes that at sites with TCE contamination the demographics of potential receptors be determined as soon as possible and sampling at homes with women of child-bearing be done soon after. The DNR is therefore requiring you to immediately begin

taking the following steps to expand the investigation and take the necessary interim actions to reduce risk posed by the contamination in accordance with chs. NR 708 and 716, Wis. Admin. Code:

- 1) Obtain demographic information for occupants of residences within the area identified by AECOM as the 'Villa Park Subdivision' during the recent public meeting. Also include residences located on Shepherds Drive, South of Stanford Lane, that were not included as part of the Subdivision.
- 2) Identify the houses where a sensitive receptor for TCE in air currently reside or will be expected to stay in the near future. This includes any woman of child-bearing years (ages 14-44).
- 3) For residences where a sensitive receptor is present, conduct an assessment which includes the following elements:
 - a. Collect paired indoor and subslab samples. Indoor air samples should be collected on the lowest level and the main living level of the home.
 - b. Any sumps within the home need to be sealed and an air sample from within the sump collected. A sample of any water within the sump should also be collected. It would also be beneficial to ascertain where the sump discharges for planning future mitigate activities.
 - c. Air and vapor samples should be analyzed with an expedited turnaround time (such as within 48 hours)
- 4) As an alternative to collecting samples and sending them off-site for laboratory analysis, consider conducting a real-time assessment of residences using a portable gas chromatography/mass spectrometry (GC/MS) to measure concentrations of contaminants in soil vapor and indoor air. Analyzing samples on-site with these units can provide a rapid assessment of site conditions and prioritization of mitigation efforts. As GC/MS units only provide an instantaneous reading of vapor concentrations, and do not assess concentrations over an extended period of time, the DNR would likely expect follow-up sampling using Summa canisters to confirm results at houses where no vapor issues were identified.

The DNR also requests that the following items be considered as the site investigation progresses.

- 5) Houses within the Villa Park Subdivision without sensitive receptors will still have to be assessed. Sampling at these residences can be prioritized based on the data collected at the houses with women of child-bearing years, groundwater data, assessment of preferential pathways, and any data obtained from real-time sampling.
- 6) At this time, analysis of sub-slab vapor and indoor air samples (and only these types of samples) may be limited to tetrachloroethylene (PCE), TCE, 1,1-dichloroethene (1,1-DCE), and vinyl chloride (VC) to accurately assess impacts most likely related to waste disposed at the landfill and not with chemical use within the home.
- 7) To reduce the delay between conducting the indoor air and sub-slab samples and installing a mitigation system, and to reduce the number of times access to a house will be required, you may decide to install mitigation systems immediately after vapor and air sampling and not waiting for the results to be reviewed. The DNR highly recommends that you discuss this approach with us prior to implementing it to ensure that the requirements in the NR 700 Rule Series will be met.
- 8) Inspection and maintenance plans for any mitigation systems installed must be provided to the DNR upon installation to comply with the requirements of ch. NR 724, Wis. Admin. Code. Additional information regarding the preparation and implementation of these plans is provided in RR-800. Installing these

systems with an alarm and/or telemetry system is strongly recommended to ensure that the mitigation systems will operate continuously where an acute risk from TCE is present.

- 9) Figures depicting sanitary and storm sewer lines in the neighborhood and landfill must be prepared and provided to the DNR. The construction of the sewers, observations made during video-logging, and repair history of the sewer lines should be discussed as part of site investigation. This information must then be evaluated to assess the need to complete in-pipe vapor sampling and additional assessment of houses potentially affected by vapor intrusion via this preferential pathway. For additional information regarding investigation of preferential pathways, see the link under 'Other Resources/Publications' on the Remediation and Redevelopment's Vapor Intrusion for Environmental Professionals webpage and the report entitled "Sewers and Utility Tunnels as Preferential Pathways for Volatile Organic Compound Migration into Buildings: Risk Factors and Investigation Protocol".
- 10) Your consultant should continue the vapor sampling and other investigation actions they have proposed to investigate groundwater contamination, commission mitigation systems, and conduct confirmation sampling. Continue to immediately assess soil vapor and indoor air at locations where groundwater contamination suggests that a residence may be at risk for vapor intrusion.
- 11) A system for organizing and presenting data related to the progress of the vapor investigation to the DNR and public should be developed. The DNR recommends developing a series of figures depicting houses within the neighborhood that clearly indicate where sampling is planned, where sampling has been conducted, where a mitigation system is proposed, where a mitigation system has been installed, where access has not been granted, etc. Additionally, a master table listing the house addresses, summarizes the information depicted on figures, concentrations of TCE in indoor and sub-slab samples, and any other information that would be useful to demonstrate the progress of the investigation.
- 12) The DNR requests that all lab data obtained during the vapor investigation be electronically submitted to the department immediately upon receipt.

The DNR appreciates the efforts that have been made to initiate the assessment and mitigation of vapor intrusion at the Villa Park Subdivision. Please contact me at (262) 574-2166 or paul.grittner@wisconsin.gov to discuss any of the above items or other aspects of this project.

Sincerely,



Paul Grittner
Hydrogeologist - Remediation & Redevelopment Program
Southeast Region

cc: Leo Linnemanstons, AECOM, 1350 Deming Way, Suite 100, Middleton, WI 53562 (electronic)
DNR file

TCE in the Air

Trichloroethylene (TCE) health effects and actions you can take to protect your home's air

TCE is a man-made chemical used at dry cleaners, in some factories to clean metal, and in some household items like paint, spot removers, and varnishes. If spilled, it can stay in the ground for a long time.

Why should I care?

- It can enter your home through cracks in the floor or walls of your basement, and other openings.
- It evaporates quickly and breathing the vapors is not healthy.
- It can cause cancer if you breathe it over a long period of time.

Who has more risk?

Babies whose mother's breathe in TCE while pregnant can have:

- Lower birth weights
- Heart defects
- Nervous or immune system problems

What if TCE is in my community?

If there is a known concern, environmental professionals will ask to check your home to make sure there is no TCE inside.

They need your permission to test the air in and below your basement.

If they find high levels of TCE, they will suggest that you have a special system installed to fix the problem.

Do I have to pay?

The people responsible for the contamination will probably have to pay for the testing and any system that has to be installed.

A "sub-slab mitigation" system moves air from below to outside the house.



What else can I do?

- Wear protective gloves if you use products with TCE (like paint remover).
- Use only small amounts of products containing TCE.
- Use the chemical in well-ventilated areas.
- Do not stay in the room for long periods of time if you can smell the chemical while using it or after using it.

Where can I learn more?

- **TCE chemical basics:** www.dhs.wisconsin.gov/chemical/trichloroethylene.htm
- **Vapor intrusion health concerns:** www.dhs.wisconsin.gov/air/vi.htm
- **Vapor intrusion 101 video:** www.youtube.com/watch?v=izo0QKqCToU



WISCONSIN DEPARTMENT
of **HEALTH SERVICES**

Division of Public Health
Bureau of Environmental and Occupational Health
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